

15.04.02 Technological Machinery and Equipment. Automated Hydraulic and Pneumatic Systems and Units

Major: Mechanical engineering

Specialization: Automated Hydraulic and Pneumatic Systems and Units

Level: Master's degree programme

Duration of training: 2 years

Programme manager:



Head of the department «Hydraulics and hydraulic and pneumatic systems»,
PhD, associate professor
Khabarova Darya

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Program Description:

The SUSU Department of Hydraulics, Hydraulic and Pneumatic Systems is the only one in the Ural Federal District that graduates specialists in hydraulic, vacuum and compressor technology. The demanded specialty and fundamental knowledge allow graduates to be employed anywhere in the world and with high wages, because hydraulics and pneumatics are the basis of almost any production.

The purpose of the program: in-depth training of specialists in automated hydraulic and pneumatic systems and units in the context of industry digitalization.

The goal is achieved by using modern methods of design, calculation, mathematical, physical and computer modeling using the means of design and technological informatics and computer-aided design.

Key Advantages:

- in-depth training in automated hydraulic and pneumatic systems and units with digital control and diagnostics;
- study of the most up-to-date methods of designing and calculating systems and units using computer-aided design tools;
- the possibility of obtaining digital competencies and a wide range of elective disciplines.

Fundamental Courses:

- Computer-aided simulation and design tools
- Automated design systems
- Microprocessor-based control systems (PLC)
- Additive technologies in manufacture of process machinery and equipment
- Automated hydraulic and pneumatic systems
- High-precision servo drives

- Hydraulic and pneumatic mechatronic systems
- Theory of control of hydraulic and pneumatic systems
- Multidimensional flows and unsteady effects in hydraulic and pneumatic systems

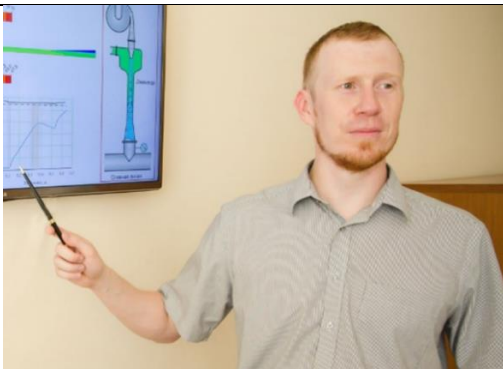
Leading academics staff:



PhD, associate professor **Sergey Bitiutckikh**

Research interests:

Hydrodynamics of unsteady, jet and two-phase flows; Cavitation and wave phenomena; positive displacement hydraulic machines; jet devices; Computational fluid dynamics.



PhD, associate professor **Alexander Ismagilov**

Research interests:

Fundamental problems of hydrodynamics of unsteady, jet and two-phase flows; Development and improvement of jet devices and systems based on them; Applied hydromechanics and hydraulics.



PhD, associate professor **Irina Maksakova**

Research interests:

Problems of increasing the reliability of the hydraulic drive; Issues of tribology and chemmotology of hydraulic drives.



PhD, associate professor
Alexander Podzerko

Research interests:

Hydrodynamics of multiphase media, hydraulic machines, vacuum systems.



PhD, associate professor
Sergey Shkolin

Research interests:

Applied hydromechanics and hydraulics, high vacuum systems and devices, jet devices, hydraulic drive, dynamics of hydraulic drives, hydraulic loading systems, positive displacement pumps

Laboratories:

Laboratory "Pneumatic drive, pneumatic automatics and automation of technological processes"



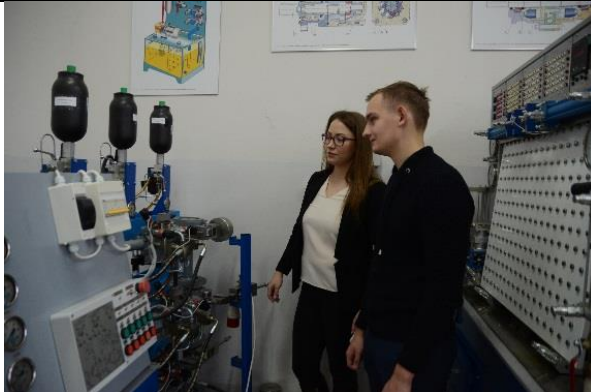
Design and assembly of logical electropneumatic systems

Laboratory "Gas Dynamics and Vacuum Technology"



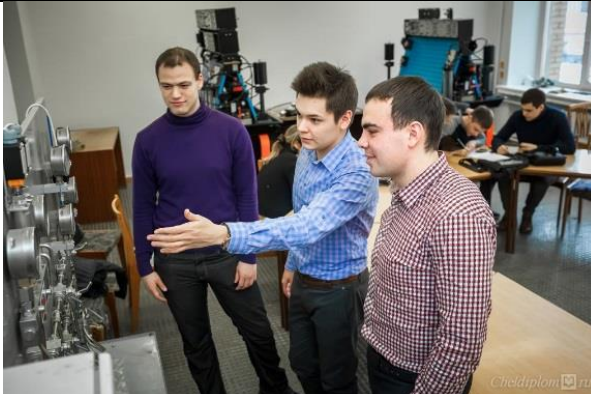
Gas Flow Study

Laboratory "Hydraulic drive, hydraulic automation and automation of technological processes"



Study of multichannel electro-hydraulic servodrives of aircraft

Laboratory "Hydraulic drive and hydraulic automatics"



Electrohydraulic automated process control systems based on programmable controllers

Laboratory "Positive displacement and dynamic hydraulic machines"



Study of hydraulic shock and transient processes
in hydraulic systems

Contact us

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